ABSTRACT

A transmission apparatus capable of preventing both degrading of the error rate characteristic and deterioration of throughput caused by repeated retransmissions. In the apparatus, arrangement determination section 103 determines in an initial transmission to perform general constellation mapping, and determines in a retransmission to vary a constellation mapping position or vary a bit arrangement of each symbol according to the number of retransmissions. Data interchanging section 105 interchanges transmission data for each bit on a symbol basis to be in a bit arrangement determined by arrangement determining section 103. Mapper section 106 configures (maps) the transmission data input from data interchanging section 105 in each symbol to be mapped in the constellation mapping position determined in arrangement determining section 103.

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FIG.1~FIG.4   FIG.7~FIG.15

I AXIS   Q AXIS

FIG.2

5   SECTION 1   SECTION 2

22.5 DEGREES

FIG.3

SECTION 1   SECTION 2

10   67.5 DEGREES

FIG.4

SECTION 1   SECTION 2   SECTION 3   SECTION 4

15   FIG.5

NUMBER-OF-TRANSMISSION INFORMATION

103   ARRANGEMENT DETERMINING SECTION

104   INTERLEAVER

TRANSMISSION DATA

20   105   DATA INTERCHANGING SECTION

106   MAPPER SECTION

107   MODULATION SECTION

108   CHANNEL

109   ARRANGEMENT JUDGING SECTION

25   110   DEMODULATION SECTION

111   DEMAPPER SECTION

112   DATA INTERCHANGING SECTION

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113   DEINTERLEAVER

RECEPTION DATA

FIG.6

THE NUMBER OF TRANSMISSIONS

CONSTELLATION PATTERN

DATA INTERCHANGING RULE

INITIAL TRANSMISSION

ORIGINAL CONSTELLATION

FIG.13   FIG.14

1 STEP